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APALACHICOLA BAY, FLA., CHANNEL ACROSS ST. GEORGE ISLAND

LETTER

FROM

THE SECRETARY OF THE ARMY

TRANSMITTING

A LETTER FROM THE CHIEF OF ENGINEERS, UNITED STATES ARMY, DATED JUNE 16, 1952, SUBMITTING A REPORT, TOGETHER WITH ACCOMPANYING PAPERS AND AN ILLUSTRATION, ON A REVIEW OF REPORTS ON APALACHICOLA BAY, FLA., REQUESTED BY A RESOLUTION OF THE COMMITTEE ON RIVERS AND HARBORS, HOUSE OF REPRESENTATIVES, ADOPTED ON APRIL 29, 1937

SEPTEMBER 30, 1952.—Referred to the Committee on Public Works and ordered to be printed with one illustration (pursuant to Public Law 504, 82d Cong.)

LETTER OF TRANSMITTAL

DEPARTMENT OF THE ARMY,
Washington 25, D. C., August 14, 1952.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

DEAR MR. SPEAKER: I am transmitting herewith a report dated June 16, 1952, from the Chief of Engineers, United States Army, together with accompanying papers and an illustration, on a review of reports on Apalachicola Bay, Fla., requested by a resolution of the Committee on Rivers and Harbors, House of Representatives, adopted on April 29, 1937.

In accordance with section 1 of Public Law 14, Seventy-ninth Congress, the views of the State of Florida are set forth in the enclosed communication.

24604—52——1

The Bureau of the Budget advises that there is no objection to the submission of the report to Congress. The complete views of the Bureau of the Budget are contained in the attached copy of its letter.

Sincerely yours,

KARL R. BENDETSEN,
Acting Secretary of the Army.

COMMENTS OF THE BUREAU OF THE BUDGET

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington 25, D. C., July 30, 1952.

The honorable the SECRETARY OF THE ARMY,
(Through the Budget Officer for the Department of the Army.)

MY DEAR MR. SECRETARY: Receipt is acknowledged of your letter dated June 27, 1952, submitting the proposed report of the Chief of Engineers on Apalachicola Bay, Fla., requested by resolution of the Committee on Rivers and Harbors, House of Representatives, adopted April 29, 1937.

I am authorized by the Director of the Bureau of the Budget to advise you that there would be no objection to the submission of the report to Congress.

Sincerely yours,

CARL H. SCHWARTZ, JR.,
Chief, Resources and Civil Works Division.

COMMENTS OF THE STATE OF FLORIDA

STATE OF FLORIDA,
STATE BOARD OF CONSERVATION,
DIVISION OF WATER SURVEY AND RESEARCH,
OFFICE OF THE CHIEF ENGINEER,
Tallahassee, Fla., May 27, 1952.

Lt. Gen. LEWIS A. PICK,
Chief of Engineers, United States Army,
Washington 25, D. C.

MY DEAR GENERAL: Under date of March 25, 1952, you courteously forwarded a copy of your proposed favorable review report on the improvement of the Gulf entrance to Apalachicola Bay. In your forwarding letter you asked for official comment thereon by the State of Florida.

After due consideration, the State concurs in your views and recommendations. The proposed cut across St. George Island will provide both a shorter and a safer route for water-borne traffic. This improvement will in no way interfere with present or proposed installations of the State.

The State of Florida recommends the early authorization of this project.

Sincerely yours,

A. G. MATTHEWS,
Colonel, United States Army, Retired,
Chief Engineer.

REPORT OF THE CHIEF OF ENGINEERS, UNITED STATES ARMY

DEPARTMENT OF THE ARMY,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington 25, D. C., June 16, 1952.

Subject: Apalachicola Bay, Fla.
To: The Secretary of the Army.

1. I submit herewith for transmission to Congress the report of the Board of Engineers for Rivers and Harbors in response to resolution of the Committee on Rivers and Harbors of the House of Representatives, adopted April 29, 1937, requesting the Board to review the reports on Apalachicola Bay, Fla., submitted on House Document No. 106, Sixty-ninth Congress, first session, with a view to determining whether any modification of the project is advisable at this time.

2. After full consideration of the reports secured from the district and division engineers, and after affording local interests full opportunity to be heard, the Board recommends modification of the existing project for Apalachicola Bay, Fla., to provide for a channel 10 feet deep and 100 feet wide from the 10-foot depth in Apalachicola Bay across St. George Island to within 300 feet of the Gulf shore, thence increasing uniformly in width to 200 feet at the shore and continuing with this width to the 10-foot depth in the Gulf of Mexico, and for two jetties extending from the dune line on St. George Island to the 10-foot depth in the Gulf, all generally in accordance with the plan of the district engineer and with such modifications thereof as in the discretion of the Chief of Engineers may be advisable; at an estimated cost to the United States of $428,700 for new work and $15,000 annually for maintenance in addition to that now required; provided that responsible local interests give assurances satisfactory to the Secretary of the Army that they will: (*a*) furnish, free of cost to the United States, all lands, easements, rights-of-way, and suitable spoil-disposal areas for the initial work and for subsequent maintenance when and as required; and (*b*) hold and save the United States free from damages, including damages to oyster beds, due to the construction and maintenance of the project.

3. After due consideration of these reports, I concur in the views and recommendations of the Board. I also recommend the abandonment or deauthorization of that part of the existing project for Apalachicola Bay, Fla., known as West Pass Channel, at such time as the new entrance channel through St. George Island is provided.

LEWIS A. PICK,
Lieutenant General, Chief of Engineers.

REPORT OF THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS

CORPS OF ENGINEERS, UNITED STATES ARMY,
BOARD OF ENGINEERS FOR RIVERS AND HARBORS,
Washington, D. C., January 15, 1952.

Subject: Apalachicola Bay, Fla.
To: The Chief of Engineers, United States Army.

1. This report is submitted in response to the following resolution adopted April 29, 1937:

Resolved by the Committee on Rivers and Harbors of the House Representatives, United States, That the Board of Engineers for Rivers and Harbors created

under section 3 of the River and Harbor Act, approved June 13, 1902, be, and is hereby, requested to review the reports on Apalachicola Bay, Florida, submitted on House Document Numbered 106, Sixty-ninth Congress, first session, with a view to determining whether any modification of the project is advisable at this time.

2. Apalachicola Bay is on the Gulf coast of Florida, 190 miles northwest of Tampa. The bay and connecting sounds, St. George Sound on the east and St. Vincent Sound on the west, form a continuous body of water separated from the Gulf of Mexico by St. Vincent, St. George, and Dog Islands. Apalachicola Bay is about 13 miles long, 7 miles in average width, and 10 to 12 feet in maximum depth. Entrance to the bay from the Gulf of Mexico is afforded directly by West Pass, between St. Vincent and St. George Islands, and indirectly by Indian Pass at the west end of St. Vincent Sound, East Pass which enters St. George Sound between St. George and Dog Islands, and a broad opening east of Dog Island. The Apalachicola River enters the bay about midway of its north shore. The town of Apalachicola is on the west bank of the river at the mouth. The Gulf section of the Intracoastal Waterway, 12 feet deep and 125 feet wide, traverses the eastern part of Apalachicola Bay and the lower 6 miles of Apalachicola River. The mean tidal range in the bay is about 1.6 feet. The existing Federal project for Apalachicola Bay provides for channels 10 feet deep from the Gulf of Mexico through West Pass and in Link and Inner Bar Channels in Apalachicola Bay, with widths of 150 feet in West Pass and Link Channels, and 100 feet in Inner Bar Channel. It also provides for a channel 9 feet deep and 100 feet wide through Bulkhead Shoal, which serves as another entrance to the bay through East Pass, the entrance to Carrabelle Harbor. The project was completed in 1925. The cost to June 30, 1950, was $692,383, of which $82,145 was for new work and $610,238 was for maintenance. The latest approved estimate of annual cost of maintenance is $10,000. Inner Bar Channel is part of the Intracoastal Waterway and has been maintained as part of that waterway since 1943. The cost of maintaining the West Pass Channel averaged about $1,700 annually between 1935 and 1950.

3. The area commercially tributary to Apalachicola Bay is limited to the region adjacent to the bay and to the Apalachicola River and its tributaries. The principal natural resources are timber, pulpwood, and sea food. Industries in the area are those concerned with the production and processing of sea food and forest products. Apalachicola, with a population of 3,268 in 1940, is one of the most important sea-food ports in Florida. The area is served by railroads and highways. Terminal facilities for the sea-food industry and general freight are available at Apalachicola. Water-borne commerce on Apalachicola Bay consists mostly of through traffic on the Intracoastal Waterway. From 1940 through 1949, the commerce averaged about 391,200 tons a year. For the same period, local commerce, included in the total, averaged 16,400 tons a year. Local commerce in 1949 amounted to 10,193 tons and consisted of 5,819 tons of oysters, shrimp, and crabs; 3,552 tons of manufactures and miscellaneous; and 822 tons of fresh or frozen fish. About 350 commercial fishing boats, with lengths of 16 to 100 feet and drafts of 2 to 9 feet, are based permanently in the vicinity of Apalachicola. During seasons of heavy fish runs, the fleet is augmented by many transient fishing boats.

4. Local interests request provision of a channel 10 feet deep and 100 feet wide across St. George Island to connect Apalachicola Bay and the Gulf of Mexico at a point about 2.5 miles east of a former opening through the barrier beach, known as New Inlet. They claim that, with the improvement providing a more direct route from the mouth of the Apalachicola River to the Gulf, the sediment load of the river, now deposited in the bay, would tend to move into the Gulf thereby reducing maintenance dredging in Inner Bar Channel; that the distance to Gulf fishing and shrimping grounds would be reduced, resulting in an annual saving of $11,000 to the fishing industry in fuel costs and permitting more fishing time with increased sea-food production; that small boats could fish in the Gulf where now they cannot owing to the excessive distances to existing entrances; and that the effectiveness of the harbor as a haven of refuge would be increased. Local interests have expressed their willingness to meet the conditions of local cooperation for the improvement.

5. The district engineer considers that the most practicable improvement would be a channel 10 feet deep and 100 feet wide from the 10-foot depth in Apalachicola Bay across St. George Island to within 300 feet of the Gulf shore, thence increasing uniformly in width to 200 feet at the shore and continuing with that width to the 10-foot depth in the Gulf of Mexico, protected by two jetties, each about 740 feet long, extending from the dune line on the island to the 10-foot depth in the Gulf. The district engineer estimates the total cost at $435,400, of which the Federal cost is $432,400 consisting of $87,000 for the channel, $341,700 for the jetties, and $3,700 for navigation aids; and the non-Federal cost is $3,000 for lands and rights-of-way. He estimates the Federal annual cost of maintenance at $15,600, of which $600 is for navigation aids. The district engineer estimates the annual charges, including maintenance costs, at $32,600 of which $32,500 is Federal and $100 is non-Federal. He estimates the annual benefits at $40,070, consisting of $4,670 for saving in fuel costs by commercial fishing boats, and $35,400 for the value of increased sea-food production. The benefit-cost ratio is 1.23. The district engineer concludes that the improvement is warranted and in the public interest. He recommends it subject to the conditions that local interests provide without cost to the United States, when and as required, all lands, easements, spoil-disposal areas, and rights-of-way necessary for construction and subsequent maintenance; and hold and save the United States free from all damages, including damages to oyster beds, due to the construction and maintenance of the improvement. The division engineer concurs.

6. The Beach Erosion Board believes that the proposed jetties will result in accretion east of the inlet and accelerated erosion west of the inlet to Cape St. George, but in view of the low value of the riparian property no remedial works are necessary in the erosion zone. The Board concurs in general in the plan of the district engineer but points out that it probably will be necessary to revet the outer end of the entrance channel to protect it from wave diffraction caused by the ends of the jetties.

7. The Board of Engineers for Rivers and Harbors felt, from the information presented, that the proposed channel would not be used to the extent estimated and accordingly informed local interests that it was not convinced of the advisability of undertaking the improve-

ment. At a hearing held by the Board at their request, local interests presented additional information bearing on the need and prospective use of the new inlet and showing the likelihood of additional diversified benefits from it. They pointed out the difficulties and dangers attending navigation through the existing passes and presented data showing how the proposed channel would increase productive fishing time, permit new fishery activities, and benefit oyster propagation.

VIEWS AND RECOMMENDATIONS OF THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS

8. After further consideration of the reports of the district and division engineers and the additional information submitted by local interests, the Board of Engineers for Rivers and Harbors is of the opinion that a channel across St. George Island is needed to facilitate operations of the local fishing fleet and of boats from other localities. It concurs in the views of the reporting officers that the proposed project is economically justified.

9. Accordingly, the Board recommends modification of the existing project for Apalachicola Bay, Fla., to provide for a channel 10 feet deep and 100 feet wide from the 10-foot depth in Apalachicola Bay across St. George Island to within 300 feet of the Gulf shore, thence increasing uniformly in width to 200 feet at the shore and continuing with this width to the 10-foot depth in the Gulf of Mexico, and for two jetties extending from the dune line on St. George Island to the 10-foot depth in the Gulf, all generally in accordance with the plan of the district engineer and with such modifications thereof as in the discretion of the Chief of Engineers may be advisable; at an estimated cost to the United States of $428,700 for new work and $15,000 annually for maintenance in addition to that now required; provided that responsible local interests give assurances satisfactory to the Secretary of the Army that they will: (*a*) Furnish, free of cost to the United States, all lands, easements, rights-of-way, and suitable spoil-disposal areas for the initial work and for subsequent maintenance when and as required; and (*b*) hold and save the United States free from damages, including damages to oyster beds, due to the construction and maintenance of the project.

For the Board:

G. J. Nold,
Major General,
Chairman.

REPORT OF THE DISTRICT ENGINEER

Survey of Apalachicola Bay, Fla.

SYLLABUS

Local interests request a channel 10 feet deep and 100 feet wide from the 10-foot depth contour in Apalachicola Bay across St. George Island to water of equal depth in the Gulf of Mexico.

The district engineer finds that the estimated annual benefit from the requested improvement would exceed the estimated annual cost thereof; he accordingly recommends modification of the existing Federal project for Apalachicola Bay, Fla., to provide for a channel 10 feet deep and 100 feet wide from the 10-foot depth contour in Apalachicola Bay across St. George Island to within 300 feet of the Gulf shore, thence increasing in width to 200 feet at the shore and continuing with

this width to the 10-foot depth contour in the Gulf of Mexico, and for two rubble-mound jetties, each about 740 feet long, extending to the 10-foot depth contour in the Gulf to stabilize the channel, with such modifications as the Chief of Engineers may deem advisable, all at an estimated Federal first cost (to be expended by the Corps of Engineers) of $428,700, with $15,000 annually thereafter for maintenance in addition to that now authorized, subject to conditions that local interests:

(*a*) Provide, without cost to the United States, when and as required, all lands, easements, spoil-disposal areas, and rights-of-way necessary for construction and subsequent maintenance of the improvement.

(*b*) Hold and save the United States free from all damages, including damages to oyster beds, due to the construction and subsequent maintenance of the improvement.

CORPS OF ENGINEERS, UNITED STATES ARMY,
OFFICE OF THE DISTRICT ENGINEER, MOBILE DISTRICT,
Mobile, Ala., May 15, 1950.

Subject: Survey of Apalachicola Bay, Fla. (small-craft channel across St. George Island).

To: The Division Engineer, South Atlantic Division, Atlanta, Ga.

1. *Authority.*—This report is submitted in compliance with the following resolution, adopted April 29, 1937:

Resolved by the Committee on Rivers and Harbors of the House of Representatives, United States, That the Board of Engineers for Rivers and Harbors created under section 3 of the River and Harbor Act, approved June 13, 1902, be, and is hereby requested to review the reports on Apalachicola Bay, Fla., submitted in House Document Numbered 106, Sixty-ninth Congress, first session, with a view to determining whether any modification of the project is advisable at this time.

A preliminary examination submitted by the district engineer December 11, 1942, was reviewed by the Board of Engineers for Rivers and Harbors; the Board recommended a survey to determine the advisability and cost of improvement and the local cooperation required. A survey was authorized by the Chief of Engineers and was assigned by the division engineer in first endorsement dated February 21, 1945 (SADRH–1 800.92 (Apalachicola) Mob–R & H).

2. *Report under review.*—The report in House Document Numbered 106, Sixty-ninth Congress, first session, is a preliminary examination and survey of Apalachicola Bay, Fla., authorized by the River and Harbor Act approved June 5, 1920. Channels 10 feet deep at mean low water, 150 feet wide from the Gulf through West Pass and Link Channels, and 100 feet wide thence via the Inner-bar Channel to the town of Apalachicola, and 9 feet deep and 100 feet wide through Bulkhead Shoal, were recommended by the Chief of Engineers and adopted by the River and Harbor Act approved January 21, 1927.

3. *Scope of survey.*—In letter dated February 15, 1945, the Chief of Engineers limited the scope of survey to consideration of a channel across St. George Island in the vicinity of a former opening known as New Inlet. Since the requested improvement would be in the nature of an inlet through a sand barrier beach and hence might be unstable and affect the adjacent shore, a special study of the problem was made as prescribed by section 5 of Public Law 409, Seventy-fourth Congress (approved August 30, 1935); the report thereon is contained in appendix A.[1]

4. Hydrographic surveys were made in the Gulf of Mexico from the high-water shore line to the 18-foot depth contour between West Pass and a point opposite Bulkhead Point, and in the bay to cover

[1] Not printed.

an area enclosed by St. George and St. Vincent Islands and a line connecting St. Vincent and Bulkhead Points. Detailed topographic surveys were made of possible sites for the requested channel. Tide records, sand samples, borings, and other related data for use in connection with the shore-protection study were procured as prescribed by the Beach Erosion Board. Aerial photographs (scale 1:10,000) were made of the shore area between Dog Island and Cape San Blas. The aerial photographs and samples of borings from selected points along the axis of New Inlet were forwarded to the Beach Erosion Board. Investigations were made and conferences were held with local officials and interested persons to determine the prospective use of the requested channel, the benefits to be expected, and the extent of local cooperation to be required. Office studies were made of wind, storm, and tidal conditions, commerce, costs of boat operations, potential savings, costs, and related subjects.

5. *Description.*—Apalachicola Bay is on the Gulf coast of Florida 190 miles northwest of Tampa, Fla., and 140 miles southeast of Pensacola, Fla. It is about 13 miles long, averages about 7 miles wide, and is 2 to 12 feet deep. The bay is prolonged to the east by St. George Sound, about 31 miles long, 4 to 5 miles wide, and 4 to 22 feet deep. St. Vincent Sound, an arm of Apalachicola Bay, extends 10 miles west; East Bay, another arm of Apalachicola Bay, extends 5 miles northeast. Apalachicola Bay and connecting sounds from a continuous body of water separated from the Gulf of Mexico by St. Vincent, St. George, and Dog Islands. The islands are low and sandy, and are partially covered with pine timber. Entrance to Apalachicola Bay from the Gulf is afforded directly by West Pass, between St. Vincent and St. George Islands; indirectly by Indian Pass at the west end of St. Vincent Sound, East Pass which enters St. George Sound between St. George and Dog Islands, and a broad opening east of Dog Island. A depth of 10 feet over variable widths is available over an indirect route 19 miles long from the Gulf of Mexico via West Pass and Apalachicola Bay to Apalachicola on the bay's north shore. A more direct route is prevented by the presence of St. Vincent Bar, extending east and south from St. Vincent Point, blocking the inner end of West Pass. The floor of Apalachicola Bay is predominantly mud and silt brought down by the rivers feeding its northern end. Numerous and extensive oyster reefs are scattered throughout the shallow waters of the bay and of St. George and St. Vincent Sounds. The mean tidal range in Apalachicola Bay, based on records obtained from an automatic recording tide gage operated by the Mobile District, Corps of Engineers, is about 1.6 feet and the extreme, except during storms, about 3 feet. Hurricane tides of about 7 or 8 feet above normal have occurred in the locality. Extreme low tides occur during the winter as a result of prevailing north winds.

6. Apalachicola River, formed by the confluence of the Chattahoochee and Flint Rivers 112 miles above its mouth, empties into Apalachicola Bay about midway of the latter's north shore. Apalachicola, a town of 3,268, is at the mouth of the Apalachicola River on its west bank. Apalachicola River carries a large load of clayey silt which is deposited in the bay just outside the river mouth, presenting a serious problem in the maintenance of improved channels at this locality. Several diverging outlets of the main river—East, St. Marks, and Little St. Marks Rivers—empty into East Bay, and are also

sediment-bearing streams of considerable size, particularly during floods.

7. The 12- by 125-foot Intracoastal Waterway, completed between Carrabelle, Fla., and Brownsville, Tex., traverses the lower 6 miles of Apalachicola River, Apalachicola Bay, and St. George Sound. A depth of 6 feet is maintained in the Apalachicola River, 3 feet in the Chattahoochee River to Columbus, Ga., and 1.5 feet in the Flint River to Albany, Ga. Congress has authorized provision of a 9-foot depth for navigation in these rivers to Columbus on the Chattahoochee and Bainbridge on the Flint, to be secured by dredging in the Apalachicola River and canalization by locks and dams. Construction of one of the lock-and-dam projects, the Jim Woodruff development at the head of the Apalachicola, is in progress. Deep-water ports are maintained to project depths of 32 feet at Port St. Joe and Panama City, Fla., 22 and 62 miles, respectively, west of Apalachicola. The authorized project for Carrabelle harbor, 27 miles east of Apalachicola, provides for maintaining depths of 27 feet in East Pass and 25 feet across St. George Sound to the port.

8. The area is shown on United States Coast and Geodetic Chart No. 1262 and on the maps accompanying this report.

9. *Tributary area.*—The tributary area of Apalachicola Bay is limited to the immediately adjacent area, the offshore fishing grounds, and points along the Apalachicola River and its tributaries. The land area consists of large forested tracts and a few widely scattered towns and villages. The adjacent inland waters and Gulf of Mexico abound in fish, oysters, and shrimp. The land is low and flat near the coast and gently rolling and increasingly higher toward the interior. In the southern portion the soil is generally unsuited to agriculture but there are extensive tracts of second-growth timber. Farther inland the soil is more fertile, and some sections in the northern portion are intensively cultivated.

10. Apalachicola, chief town in the area, ranks as one of the most important sea-food ports in Florida. Oysters obtained from the beds in Apalachicola Bay, and fish, shrimp, and menhaden taken from the nearby coastal waters provide the town with its major source of income. Several sea-food canning plants, an oystershell crushing plant, and a fish-meal factory for processing menhaden are located there. Apalachicola is a point of distribution for fresh sea foods over a wide territory.

11. The principal towns and villages in the area, with their 1940 populations, are as follows:

Town	County	1940 population
Apalachicola	Franklin	3,268
Chattahoochee	Gadsden	7,110
Blountstown	Calhoun	1,931
Bristol	Liberty	1,339
Eastpoint	Franklin	[1] 800
Wewahitchka	Gulf	1,022

[1] Estimated.

12. The principal natural resources in the tributary area are the stands of timber and pulpwood and the abundant supplies of sea food.

The highlands in the area are covered with longleaf and slash pines in various stages of growth. Only a very small percentage of original pine remains in the area, most of the merchantable timber being second-growth stock. There is also a fairly large stand of pulpwood in the territory which is consumed at the paper mills in Panama City and Port St. Joe, much of it being barged over the Apalachicola River and the Intracoastal Waterway.

13. The only industries in the tributary area are those previously mentioned relating to sea food and other products of the sea and to products of the forest. Several lumber mills are located in the area and about 10 rosin and turpentine stills are scattered throughout the hinterland. Agricultural production in the northern portion of the area is devoted chiefly to potatoes, tobacco, sugarcane, feed, and honey.

14. Apalachicola is served by one main highway (U S 98) which parallels the coast, and by the Apalachicola-Northern Railroad, a short line from Port St. Joe through Apalachicola to Chattahoochee, Fla., where it connects with the Louisville & Nashville, Atlantic Coast Line, and Seaboard Air Line Railroads.

15. *Bridges.*—A highway bridge and causeway crosses the mouth of Apalachicola River and Apalachicola Bay between Apalachicola and the east side of the bay. It has a main-channel swing span across the Apalachicola River and a fixed raised span at the entrance to East Bay. About 45 percent of its total length of 5 miles is fill; the remainder is creosoted-pile trestle with a concrete deck. Other pertinent data are listed below:

Owner: State Road Department of Florida.
Purpose: Highway, U S 98.
Main channel clearances (swing span):
Horizontal, 120 feet.
Vertical, closed, 29 feet mean high water; open, unlimited.
Fixed opening (East Bay):
Horizontal, 36 feet.
Vertical, 18 feet mean high water.
Clearance between ordinary bents:
Horizontal, 25 feet.
Vertical, 14.5 feet mean high water.
Bridge completed January 30, 1936, in accordance with plans approved by the Secretary of War on June 9, 1933.

16. *Prior reports.*—The four most recent reports on Apalachicola Bay are listed in table 1.

TABLE 1.—*Prior reports on Apalachicola Bay, Fla.*

Locality	Date transmitted to Congress	Kind of report	Character of proposed work	Recommendation of Chief of Engineers	Congressional document
Crooked Channel, Fla	Mar. 12, 1914	Preliminary examination.	Abandonment of main channel and improvement of Crooked Channel with equal or greater facilities for navigation.	Unfavorable	H. Doc. 834, 63d Cong., 2d sess.
West Pass, Apalachicola, Fla.	Mar. 1, 1916	do	Improvement of West Pass to provide a depth not less than 22 feet and extension of same depth to Apalachicola.	Unfavorable. Recommended abandonment of existing project for West Pass and Link Channels.	H. Doc. 860, 64th Cong., 1st sess.
Channel from Apalachicola, Fla., through St. George Sound to Gulf of Mexico.	Aug. 3, 1917	do	Provision of ship channel 18 to 20 feet deep and 100 to 200 feet wide from Apalachicola to East Pass along most suitable route or if deemed prohibitive a channel 10 feet deep and 100 feet wide on direct route from Apalachicola to Bulkhead Shoal.	Unfavorable	H. Doc. 316, 65th Cong., 1st sess.
Apalachicola Bay, Fla	Dec. 7, 1925	Preliminary examination and survey.	Provision of channel 10 feet deep and 100 feet wide from Apalachicola through the river bar, thence through the bay both to east and southeast.	Favorable. Recommended channel 10 feet deep and 150 feet wide from Gulf through West Pass and Link Channel and 100 feet wide, thence to Apalachicola; channel 9 feet deep and 100 feet wide through Bulkhead Shoal.	H. Doc. 106, 69th Cong., 1st sess.[1]

[1] Basis of existing project.

17. *Existing Corps of Engineers' project.*—The original project for Apalachicola Bay, Fla., adopted by the River and Harbor Act of June 14, 1880, provided for a channel 11 feet deep and 100 feet wide through the shoal at the mouth of Apalachicola River. The River and Harbor Act of March 2, 1899, adopted a project for Apalachicola Bay providing for a channel 100 feet wide and 18 feet deep from Apalachicola through Link Channel and West Pass to the Gulf. That project continued in force until 1907, when it was superseded by the existing project. The total cost and expenditure of previous projects was $303,379.26, of which $134,613.50 was for new work and $168,765.76 for maintenance.

18. The existing project for Apalachicola Bay, Fla., adopted by the River and Harbor Act of March 2, 1907, and amended by the River and Harbor Act of January 21, 1927, provides for channels from the Gulf of Mexico 10 feet deep at mean low water through West Pass in the Gulf of Mexico and Link and Inner-bar Channels in Apalachicola Bay, 150 feet wide in West Pass and Link Channels and 100 feet wide in the Inner-bar Channel. It also provides for a 9- by 100-foot channel through Bulkhead Shoal, which serves as another entrance to Apalachicola Bay via East Pass, the entrance channel to Carrabelle Harbor. The Bulkhead Shoal Channel has been supplemented by the Intracoastal Waterway cut through the shoal at a more southerly location. The existing project was completed in 1925. The total cost of the existing project to June 30, 1950, was $692,382.54, of which $82,144.59 was for new work and $610,237.95 for maintenance. The latest (1949) approved estimate of annual cost of maintenance is $10,000. Prior to 1943, the average annual cost of maintenance (1928–42, inclusive) was $20,850, most of which was spent on the Inner-bar Channel. Since 1943 that channel has been maintained to dimensions of 12 by 125 feet with funds allotted to the Gulf section of the Intracoastal Waterway, of which Inner-bar Channel is a part. The cost of maintaining the West Pass Channel has averaged about $1,700 annually between 1935 and 1950. During those years the bar channel was neglected due to lack of a hopper dredge small enough to operate in the shallow water. However, navigation was not unduly impeded during the period.

19. *Local cooperation on existing and prior projects.*—No local cooperation is required in connection with the existing project for Apalachicola Bay.

20. *Other improvements.*—No navigation improvements have been made in the area at local expense.

21. *Terminal and transfer facilities.*—A continuous line of small wooden pile-and-timber marginal wharves extends along the west bank of the river at Apalachicola. Most of the wharves are provided with frame warehouses, and a number are bulkheaded and filled in. They are used mostly by commercial fishing and oyster boats. There are also two wharves with warehousing facilities for handling general freight, open to all carriers on equal terms, and several tanks for the storage of petroleum products. All wharves have railroad and highway connections. The present terminal facilities are adequate for existing commerce and there is ample space along the water front for expansion should increased port commerce warrant it.

22. *Improvement desired.*—Two public hearings have been held in Apalachicola in connection with this investigation. At the first,

held September 4, 1937, local interests requested a channel 15 feet deep and 100 feet wide from Apalachicola to the Gulf of Mexico via a former opening in St. George Island known as New Inlet. This proposed improvement was considered in the district engineer's report submitted December 3, 1937; as a result of his unfavorable recommendation, concurred in by the division engineer, local interests appealed to the Board of Engineers for Rivers and Harbors to reconsider the subject with a view to providing a 9-foot channel instead of the 15-foot channel originally requested. The report was returned to the district engineer for reconsideration in the light of local interests' appeal, with the recommendation that another public hearing be held.

23. The second public hearing was held on June 21, 1939, and was attended by 33 citizens of Apalachicola and neighboring communities. At that hearing the junior chamber of commerce, in a brief presented to the district engineer, requested that a 10- by 100-foot channel be dredged through St. George Island at the location of the former opening known as New Inlet. Subsequent to the hearing a change in location to an area about 2.5 miles east of New Inlet was requested. Several reasons in support of the proposed improvement, given in the brief and in oral statements, are summarized below:

(*a*) It would provide a more-direct route from the mouth of the Apalachicola River to the Gulf of Mexico. Silt carried in the river, and now deposited in the bay, would have a tendency to move into the Gulf, thereby reducing maintenance dredging in the Inner-bar Channel.

(*b*) It would provide a shorter route to the snapper banks and shrimping grounds in the Gulf and save the industry about $11,000 annually in fuel costs due to the shorter distance traveled. More man-hours for fishing and shrimping would be available due to time saved by the shorter run, with a resultant increase in sea-food production.

(*c*) By providing a more direct and shorter route for fishing vessels stationed at and near Apalachicola, the effectiveness of the harbor as a haven of refuge from storms would be greatly increased. Boats engaged in snapper fishing would be about 3 hours closer to a harbor of refuge than at present.

(*d*) Areas in the Gulf of Mexico now said to be inaccessible to part of the fishing fleet due to excessive distances from the present entrance to Apalachicola Bay would be made accessible if the channel were dredged across the island.

24. In November 1941, local interests requested that Crooked Channel in Apalachicola Bay, formerly used as a ferry channel, be dredged to a depth sufficient to allow passage of small oyster boats to grounds in the eastern portion of Apalachicola Bay. Since that channel is not part of the authorized project for Apalachicola Bay, the request was denied. Later, local interests requested consideration of North Channel, which roughly parallels Crooked Channel, and submitted a brief outlining the savings that would accrue to the fishing industry. In order that these proposals might be properly investigated, the report of preliminary examination of Apalachicola Bay, dated November 25, 1939, was returned from the Board of Engineers for Rivers and Harbors for reconsideration. That report was resubmitted December 11, 1942, and a survey was directed to consider only the channel across St. George Island (par. 3).

25. *Existing commerce.*—A comparative statement of waterborne commerce on Apalachicola Bay from 1940 through 1949 is given in table 2.

TABLE 2.—*Comparative statement of traffic, Apalachicola Bay, Fla.*

[Short tons]

Year	Internal and local traffic	Through traffic (Intracoastal Waterway)	Total	Year	Internal and local traffic	Through traffic (Intracoastal Waterway)	Total
1940	15,506	97,369	112,875	1945	8,281	913,179	921,460
1941	21,900	100,184	122,084	1946	15,227	105,351	120,578
1942	16,408	145,844	162,252	1947	14,393	117,862	132,255
1943	19,473	677,057	696,530	1948	28,150	122,194	150,344
1944	14,263	1,327,346	1,341,609	1949	10,523	141,054	151,577

26. The water-borne commerce over the project channels of Apalachicola Bay for the calendar year 1949 is shown in table 3. Through traffic consists principally of commodities barged over the Intracoastal Waterway.

TABLE 3.—*Freight traffic, 1949, Apalachicola Bay, Fla.*

Commodities		*Short tons*
INTERNAL RECEIPTS		
Government materials used in waterway improvements		300
INTERNAL SHIPMENTS		
Government materials used in waterway improvements		30
Total		330
LOCAL		
Fish, fresh or frozen		822
Shellfish and shellfish products:		
Oysters, in shell	4,700	
Shrimp, fresh	819	
Crabs, live	300	
		5,819
Manufactures and miscellaneous		3,552
Total		10,193
THROUGH TRAFFIC		
Fish, fresh or frozen		5
Menhaden		7,458
Grains		1,528
Gas oil and fuel oil		3,562
Motor fuel and gasoline		87,010
Kerosene		9,709
Residual fuel oil, including bunker oil		4,095
Lubricating oils and greases		6,701
Petroleum asphalt		7,562
Iron and steel manufactures		6,176
Merchant vessels and other watercraft and parts		2,871
Phosphate fertilizer materials		4,342
Manufactures and miscellaneous		35
Total		141,054
Grand total, all traffic		151,577

27. The average annual tonnages of the various species brought in for the four complete postwar years were as follows:

Item	*Tons (1946–49 average)*
Shrimp	834
Fish, fresh	990
Oysters (in shell)	6, 512
Crabs, live	348
Menhaden	7, 512
Total	16, 196

28. Edible sea food, and menhaden used in the manufacture of oil, feed, and fertilizer, constitute the principal items of commerce on which the economy of Apalachicola is based. Deep-sea species of fish such as snapper and grouper are caught by hand line in the Gulf of Mexico generally a considerable distance from shore. Mullet are caught in nets along the Gulf shore, with small quantities taken in Apalachicola Bay and St. George Sound. Large quantities of shrimp are caught in the bay and the nearby Gulf; menhaden are caught in the Gulf. Oysters are dredged or tonged from numerous oyster reefs in Apalachicola Bay and St. George and St. Vincent Sounds; it is reported that these reefs yield about 60 percent of the total yield for the State. Crabs are taken from the waters of Apalachicola Bay and St. George and St. Vincent Sounds. All the edible sea food is processed and packed locally and distributed to the markets by truck or railway express. Menhaden are processed at a local fish-meal factory.

29. *Prospective commerce.*—Provision of the requested improvement would shorten the round-trip distance from Apalachicola to the Gulf by about 20 miles, or about 2½ hours running time by the average fishing boats. The additional time so made available would presumably be devoted to fishing, with an increase in the catch of Gulf species of fish and shrimp at no increase in cost for equipment or time away from port. The increase in productive hours would amount to about 30 percent for menhaden boats, shrimp trawlers, and vessels fishing for mullet and mackerel.

30. In paragraph 27 all the menhaden, about 50 percent of the shrimp, and 75 percent of the edible fish reported were taken from the Gulf, the remaining sea food being taken from Apalachicola Bay and contiguous inland waters. In this analysis it is assumed that, although the average increase in productive hours for the various fishing vessels would be about 30 percent, the sea-food yield would increase only about 10 percent, since in many cases the full capacity of a fishing boat is reached at such an hour as to make the additional time unnecessary. Thus the additional tonnage which would be brought into Apalachicola for processing would be as follows:

	Existing commerce	Existing Gulf tonnage	Net increase
	Tons	*Tons*	*Tons*
Shrimp	834	417	42
Fish	990	742	74
Menhaden	7, 512	7, 512	751

31. In addition, large numbers of the smaller fishing boats which now make only occasional trips into the Gulf will increase the number

of trips into the outside grounds where fish and shrimp are generally more abundant. The anticipated increase in catch resulting from more frequent trips by these vessels cannot be readily computed.

32. *Vessel traffic.*—The various channels composing the Apalachicola Harbor project are used primarily by commercial vessels engaged in shrimping, oystering, and fishing, and by a number of recreational craft. Since the Inner-bar Channel is also a part of the Intracoastal Waterway, a large number of towboats and multiple-barge tows use the harbor. The commercial fishing fleet based permanently in the vicinity of Apalachicola consists of about 350 vessels 16 to 100 feet long and drawing 2 to about 9 feet. During certain seasons when the various species of fish are "running" in the area, the fleet is augmented by numerous transient fishing vessels. Trips and drafts of vessels using Apalachicola Harbor in 1949 are listed in table 4. In addition, numerous unrecorded trips are made by small recreational and independent commercial fishing craft based at the port.

TABLE 4.—*Apalachicola Bay, Fla., trips and drafts of vessels for 1949*

Draft (feet)	In-bound			Out-bound		
	Motor vessels	Barges	Total	Motor vessels	Barges	Total
9	4		4	185		185
8				64		64
7	2	62	64	1	5	6
6	237	343	580	43	21	64
5	266	298	564	229	58	287
4	866	27	893	833	44	877
3	2,910		2,910	3,012	182	3,194
2	3,206	32	3,238	3,207	204	3,411
1	10,019	66	10,085	10,021	325	10,346
Total	17,510	828	18,338	17,595	839	18,434
Total net registered tonnage	65,815	166,428	232,243	66,394	167,485	233,879

33. *Difficulties attending navigation.*—No unusual difficulties other than the circuity of route between the Gulf of Mexico and Apalachicola attend navigation on the project channels of Apalachicola Bay.

34. *Water power and other special subjects.*—Only navigation would be affected by provision of the requested channel.

35. *Plan of improvement.*—The desires of local interests for modification of the existing project are described in paragraph 23. At the public hearing, the location of the requested channel was specified as the former opening known as New Inlet. Subsequent to the hearing local interests requested that the location be shifted to an area about 2 or 3 miles east of New Inlet in order to provide a more direct route from Apalachicola to the Gulf.

36. The improvement considered most practicable, considering present and prospective vessel traffic, consists of a channel 10 feet deep and 100 feet wide, with 1 on 5 side slopes throughout, from the 10-foot-depth contour in Apalachicola Bay across St. George Island to within 300 feet of its Gulf shore, thence increasing uniformly in width to 200 feet at the shore and continuing with this width to the

10-foot-depth contour in the Gulf of Mexico, as shown on the map accompanying this report. In the special study on the shore-protection features of the project (appendix A [1]) it was recommended that twin rubble-mound jetties be installed, each about 740 feet long, extending from the 10-foot-depth contour in the Gulf to the dune line about 200 feet inland from the Gulf shore. The inner sections would be spaced 800 feet apart; the outer sections would converge to a spacing of 300 feet at the seaward ends. The minimum top elevation would be 6 feet above mean low water, and, to insure against undermining, the base would nowhere be less than 6 feet below mean low water. A lay-out, profile, and typical section of the jetties are shown on plate VIII.[1] The proposed improvement as designed for the bay side of St. George Island could probably be used under any weather conditions permitting fishing in the Gulf.

37. About 40 acres of sandy, partially timbered land would be required for the rights-of-way across St. George Island. The island is accessible by small boats only, has little value, and is used only as a pasture for a few cattle and for obtaining resin from the small pine trees that grow there. No difficulty in obtaining necessary rights-of-way is anticipated by local interests.

38. *Aids to navigation.*—The estimated first cost and annual cost of maintenance for navigation aids required in connection with the improvement considered herein were furnished by the district Coast Guard officer, Miami, Fla. The district engineer concurs in the estimates.

39. *Shore-line changes.*—A special study to determine the probable effect of the proposed improvement on the shore for 10 miles on each side of the location considered and to determine the advisability of constructing jetties or other structures to stabilize the channel, was made in connection with this report; the results are contained in appendix A.[1] The report recommended that twin rubble-mound jetties, as described in paragraph 36 herein, be included in the recommended plan for improvement. The report concluded also that some riparian property would be lost by erosion, but that such erosion would not be extensive and since the island is uninhabited and the property of low value, construction of expensive protective structures to prevent such loss would be unwarranted.

40. *Estimates of first cost.*—The estimated first cost of the improvement contemplated herein is itemized below. Material to be dredged consists mainly of sand and silt; the quantities shown include 2 feet for overdepth dredging and provide for side slopes of 1 on 5. Jetties would be of the rubble-mound type conforming to the typical section on plate VIII.[1] Engineering, overhead, and contingencies are included in the unit prices.

[1] Not printed.

(*a*) Federal first cost:	
1. Channel:	
(*a*) Dredging 325,000 cubic yards, at $0.26	$85,000
(*b*) Clearing	2,000
(*c*) Subtotal, channel	87,000
2. Jetties:	
(*a*) Jetty stone, 39,000 tons, at $8.50	331,500
(*b*) Excavation, 34,000 cubic yards, at $0.30	10,200
(*c*) Subtotal, jetties	341,700
3. Total first cost to Corps of Engineers	428,700
4. Aids to navigation (U. S. Coast Guard)	3,700
5. Total Federal first cost	432,400
(*b*) Non-Federal first cost:	
1. Value of lands for rights-of-way	3,000
2. Total non-Federal first cost	3,000

41. *Estimates of annual charges.*—The estimated annual charges for the proposed improvement follows:

(*a*) Federal investment:	
1. Estimated expenditures by Corps of Engineers for new work	$428,700
2. Estimated expenditures by U. S. Coast Guard for navigation aids	3,700
3. Total Federal investment	432,400
(*b*) Federal annual charge:	
1. Interest at 3 percent	13,000
2. Amortization (50-year life)	3,900
3. Annual cost of maintenance in addition to that now authorized	15,000
4. Annual cost of maintenance by U. S. Coast Guard in addition to that now required (plus replacement cost at 20 years)	600
5. Total Federal annual charge	32,500
(*c*) Non-Federal investment: Rights-of-way	3,000
(*d*) Non-Federal annual charge: Interest and amortization (4 percent)	100
(*e*) Total Federal and non-Federal annual charge	32,600

42. *Estimate of benefits.*—The requested channel would shorten the round-trip distance from Apalachicola to the Gulf where part of the annual sea-food catch is obtained, by an average of about 20 miles with a consequent reduction in fuel consumption. Since running time would also be reduced by about 2½ hours a round-trip, additional time could be profitably devoted to fishing, with an increase in sea-food catch (par. 30) at no increase in cost for equipment or time required away from port. The requested new opening across the island would serve also as an additional entrance to a harbor of refuge.

43. Tangible benefits expected from the requested channel are discussed in the succeeding subparagraphs.

(a) *Savings in fuel consumption.*—It is estimated that the annual number of round trips by the various classes of vessels to the fishing area affected by the requested improvement are as follows:

Mullet and mackerel boats	1,730
Shrimpers	1,668
Snapper boats	220
Menhaden boats	440

Vessel operators report that the fuel cost of operating menhaden boats is about $0.15 a mile and of all other types about $0.09 a mile. On this basis the maximum possible savings per round trip would be $3 for menhaden boats and $1.80 for other types. However, since power is used while fishing for shrimp, menhaden, and snapper and grouper only the reduced fuel consumption during the additional fishing time made available should be taken as a saving. Vessel operators estimate that, while fishing, fuel consumption is about two-thirds of that used while running to or from port; the net savings per round trip for the snapper and menhaden boats and shrimpers would be one-third of that estimated above. The estimated annual savings in fuel consumption for each class of vessel are as follows:

Type	Round trips	Savings per trip	Total savings in fuel costs
Mullet	1,730	$1.80	$3,100
Shrimp	1,668	.60	1,000
Snapper and grouper	220	.60	130
Menhaden	440	1.00	440
Total			4,670

(*b*) *Increased sea-food production.*—The shorter route to the Gulf would result in an increase in sea-food yield (par. 30) at no increase in equipment or labor costs. Based on current prices paid to the fishermen, the value of the increase in yield would be as follows:

Shrimp, 42 tons	$12,600
Edible fish, 74 tons	17,800
Menhaden, 751 tons	5,000
Total	35,400

44. *Comparison of benefits and costs.*—A comparison of the estimated annual benefits with the estimated annual charges follows:

Annual benefits	$40,070
Annual cost	$32,600
Benefit-to-cost ratio	1.23

In view of the additional intangible benefits to which no monetary value could be assigned, it is believed that the ratio of annual benefits to annual charges as derived above is reasonable and conservative.

45. *Proposed local cooperation.*—Provision of the proposed improvement should be subject to the conditions that local interests—

(*a*) Provide, without cost to the United States, when and as required, all lands, easements, spoil-disposal areas, and rights-of-way necessary for construction and subsequent maintenance of the improvement.

(*b*) Hold and save the United States free from all damages, including damages to oyster beds, due to the construction and subsequent maintenance of the improvement. Local interests have indicated their willingness to meet the above conditions.

46. *Coordination with other agencies.*—In accordance with law the following agencies were invited to submit comments on the proposal:

State of Florida
Federal Power Commission
United States Public Roads Administration
United States Fish and Wildlife Service
United States Department of the Interior
United States Geological Survey
United States Public Health Service
National Park Service

The National Park Service and the Fish and Wildlife Service stated that the interests of their respective services would not be affected by the requested improvement. No communications were received from the other agencies listed.

47. *Discussion.*—The improvement considered herein (par. 36) consists of a channel with minimum dimensions of 10 by 100 feet across St. George Island to connect Apalachicola Bay with the Gulf of Mexico. The Gulf entrance of the channel could be stabilized by twin rubble-mound jetties each about 740 feet long, with converging seaward ends. The initial Federal cost of the work is estimated at $428,700, to be expended by the Corps of Engineers, and $3,700 to the United States Coast Guard for aids to navigation. Annual cost of maintaining the project is estimated at $15,000 in addition to the $10,000 now authorized. The total Federal and non-Federal annual cost is estimated at $32,600, which is exceeded by the annual benefits to be derived from the improvement, estimated at $40,070, in the ratio of 1.23 to 1.

48. The channel would provide direct access from the Gulf to the port of Apalachicola, shortening the present round-trip distance via West Pass by about 20 miles, or by 2½ hours running time by the average fishing vessel. A saving in fuel consumption would result, and additional time would be made available for fishing at no additional time away from port. The benefits expected to so result are evaluated at about $40,070. The improvement would also provide an additional entrance to a harbor of refuge. The additional sea food yielded by the shorter route to the Gulf would encourage the establishment of new industries related to sea-food production and expansion of existing industries, which in turn would add to the general welfare of the community.

49. Local interests should be required to furnish all necessary rights-of-way and spoil-disposal areas and to hold and save the United States free from damages, including damages to oyster beds, due to the construction works and subsequent maintenance thereof. Local interests have expressed their willingness to meet these conditions.

50. *Conclusion.*—The district engineer concludes that the most suitable improvement of Apalachicola Bay, Fla., consists of a channel with minimum dimensions of 10 by 100 feet from Apalachicola Bay across St. George Island to the Gulf of Mexico, protected by two rubble-mound jetties each about 740 feet long extending to the 10-foot depth contour in the Gulf, as described in paragraph 36 herein and shown in detail on plate VIII,[1] all at an estimated Federal

[1] Not printed.

first cost (to be expended by the Corps of Engineers) of $428,700, with $15,000 annually thereafter for maintenance in addition to that now authorized. The entire initial amount required should be made available in one allotment. He concludes also that the improvement is warranted and in the public interest provided that local interests comply with the conditions of local cooperation proposed in paragraph 45.

51. *Recommendation.*—The district engineer recommends that the existing Federal project for Apalachicola Bay, Fla., be modified to provide for a channel 10 feet deep and 100 feet wide from the 10-foot-depth contour in Apalachicola Bay across St. George Island to within 300 feet of the Gulf shore, thence increasing in width to 200 feet at the shore and continuing with this width to the 10-foot-depth contour in the Gulf of Mexico; and protected by two rubble-mound jetties extending from the dune line on St. George Island to the 10-foot-depth contour in the Gulf, substantially as shown on the drawings accompanying this report, with such modifications as the Chief of Engineers may deem advisable, at an estimated Federal first cost (to be expended by the Corps of Engineers) of $428,700, with $15,000 annually thereafter for maintenance in addition to that now authorized, subject to the conditions that local interests—

(*a*) Provide, without cost to the United States, when and as required, all lands, easements, spoil-disposal areas, and rights-of-way necessary for construction and subsequent maintenance of the improvement.

(*b*) Hold and save the United States free from all damages, including damages to oyster beds, due to the construction and subsequent maintenance of the improvement.

W. K. Wilson, Jr.,
Colonel, Corps of Engineers,
District Engineer.

[First endorsement]

Office, Division Engineer,
South Atlantic Division,
Atlanta, Ga., June 7, 1950.

To: The Chief of Engineers, United States Army, Washington, D. C.

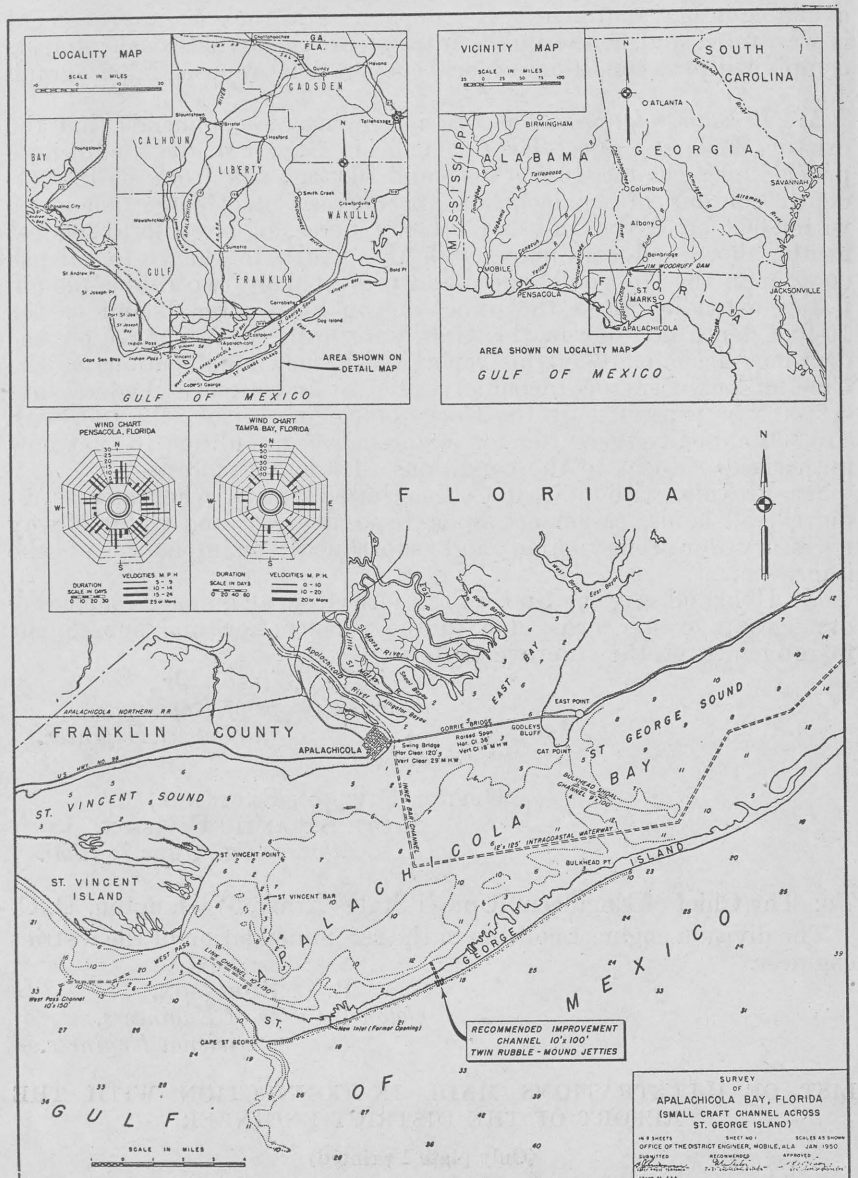
The division engineer concurs in the recommendation of the district engineer.

B. L. Robinson,
Colonel, Corps of Engineers,
Division Engineer.

LIST OF ILLUSTRATIONS MADE IN CONNECTION WITH THE REPORT OF THE DISTRICT ENGINEER

(Only plate 1 printed)

1. Small craft channel across St. George Island.
2. Shore-protection study, general map.
3. Shore-line changes—St. Vincent Island to New Inlet.
4. Shore-line changes—New Inlet to Bulkhead Point.
5. Offshore depth changes—St. Vincent Island to New Inlet.
6. Offshore depth changes—New Inlet to Bulkhead Point.
7. Tide and velocity curves.
8. Plan of improvement.


LOCALITY MAP
SCALE IN MILES
GA.
FLA.
GADSDEN
CALHOUN
LIBERTY
FRANKLIN
WAKULLA
GULF
BAY
AREA SHOWN ON DETAIL MAP
GULF OF MEXICO
VICINITY MAP
SCALE IN MILES
SOUTH CAROLINA
ATLANTA
BIRMINGHAM
ALABAMA
GEORGIA
MISSISSIPPI
MOBILE
PENSACOLA
FLORIDA
MARKS
APALACHICOLA
JACKSONVILLE
AREA SHOWN ON LOCALITY MAP
GULF OF MEXICO
WIND CHART PENSACOLA, FLORIDA
WIND CHART TAMPA BAY, FLORIDA
DURATION SCALE IN DAYS
VELOCITIES M.P.H.
FLORIDA
N
APALACHICOLA NORTHERN R.R.
FRANKLIN COUNTY
APALACHICOLA
GORRIE BRIDGE
Swing Bridge (Net Clear 120')
Vert Clear 23' M.H.W.
Raised Span Hor. Cl. 36'
Vert Cl. 18' M.H.W.
SOOLEYS BLUFF
EAST POINT
CAT POINT
EAST BAY
ST. GEORGE SOUND
ST. GEORGE BAY
BULKHEAD SHOAL CHANNEL 9'x100'
9'x125' INTRACOASTAL WATERWAY
BULKHEAD PT.
ST. GEORGE ISLAND
ST. VINCENT SOUND
ST. VINCENT POINT
ST. VINCENT BAR
ST. VINCENT ISLAND
APALACHICOLA BAY
WEST PASS
WEST PASS CHANNEL 10'x150'
CAPE ST. GEORGE
New Inlet (Turner Opening)
RECOMMENDED IMPROVEMENT
CHANNEL 10'x100'
TWIN RUBBLE-MOUND JETTIES
GULF OF MEXICO
SCALE IN MILES
SURVEY OF
APALACHICOLA BAY, FLORIDA
(SMALL CRAFT CHANNEL ACROSS ST. GEORGE ISLAND)
OFFICE OF THE DISTRICT ENGINEER, MOBILE, ALA. JAN. 1950
FILE NO. D-17-1-78